

**A new leucosiid crab of the genus *Nursia* Leach, 1817 from Vietnam
(Crustacea: Decapoda: Brachyura), with redescription of
N. mimetica Nobili, 1906**

Hironori Komatsu and Masatsune Takeda

(HK) Department of Biological Sciences, Graduate School of Science, The University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo, 113-0033 Japan (corresponding address: Department of Zoology, National Science Museum, 3-23-1 Hyakunincho, Shinjuku-ku, Tokyo, 169-0073 Japan); (MT) Department of Zoology, National Science Museum, 3-23-1 Hyakunincho, Shinjuku-ku, Tokyo, 169-0073 Japan, and Department of Biological Sciences, Graduate School of Science, The University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo, 113-0033 Japan.

Abstract.—A new species of leucosiid crab, *Nursia guinotae*, is described from Vietnam. It is similar to *N. mimetica* Nobili, 1906 from the Tuamotu Archipelago and *N. alata* Komatsu & Takeda, 1999 from the Ryukyu Islands, in the projecting epistome, the expanded epibranchial region, and the dorsal ridges, but is distinguished from them by the dentate epibranchial ridge and well-developed posterior lobes. *Nursia mimetica*, a species not reported since its original description, is redescribed based on the syntype specimen.

Recently, we had the opportunity to examine specimens of the genus *Nursia* Leach, 1817 deposited in the Muséum national d'Histoire naturelle, Paris, through the courtesy of Prof. D. Guinot. Among this material, a small specimen which was collected in Vietnam and preliminarily identified as *N. plicata* (Herbst, 1804) was found. Unfortunately, detailed locality of this specimen is unknown. This very small specimen has an expanded branchial region and a dentate epibranchial ridge, and actually represents an undescribed species. Herein, we describe it as a new species, and redescribe an allied species, *N. mimetica* Nobili, 1906, from Rikitea, Tuamotu Archipelago, French Polynesia, to clarify the identity of both species, because the original and subsequent descriptions of *N. mimetica* by Nobili (1906, 1907) are very poor and insufficient.

Measurements, given in millimeters (mm), are of the greatest carapace length (including the posterior lobe) and breadth, respectively. The descriptive terminology follows Ihle (1918), including the abbreviations R and T in abdominal formulae

which indicate Rest and Telson in German, respectively. The specimens remain deposited in the Muséum national d'Histoire naturelle, Paris (MNHN).

Family Leucosiidae Samouelle, 1819

Nursia guinotae, new species

Figs. 1, 2

Material examined.—Holotype, female, 2.7 × 3.2 mm, Vietnam, coll. Gallardo, MNHN-B 9947.

Description of holotype.—Carapace (Figs. 1, 2a, b) rhomboidal in general outline, 1.3 times broader than long, uniformly covered with minute, flat granules, provided with postfrontal, median, and epibranchial ridges. Front well developed, 0.3 times as broad as carapace; margin slightly ridged, divided into 2 truncate lobes by shallow median notch; postfrontal ridges rising from near frontal-orbital angles, converging, meeting at midline. Orbit with 2 vestigial, longitudinal fissures on dorsal roof and V-shaped notch on infraorbital lobe. Pterygostomial margin forming general outline.

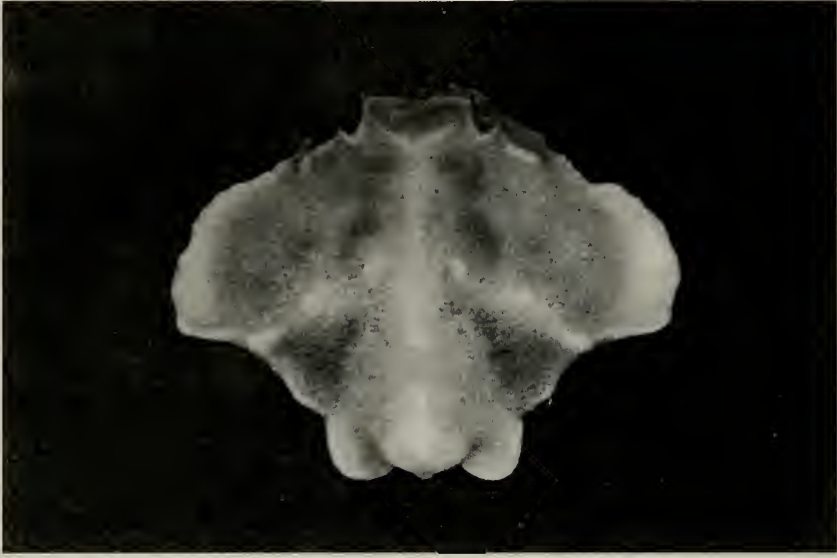


Fig. 1. *Nursia guinotae*, new species, holotype, ovigerous female, Vietnam, 2.7×3.2 mm (MNHN-B 9947). Scale equal 1 mm.

with small angle near posterior end. Hepatic region faintly defined; margin inside general outline of carapace, angled near posterior end. Mesogastric median ridge gentle, narrow, rising from junction of postfrontal ridges. Gastric region with pair of tubercles and 1 median pearl-like granule slightly anterior to tubercles. Cardiac region medially prominent, faintly separated from intestinal region by shallow transverse groove. Intestinal region strongly prominent, with median ridge, culminating slightly anterior to posterior end. Epibranchial region strongly expanded, sloping anteriorly from ridge; margin thin, upturned, rounded, somewhat incurved near posterior end, forming right angle with metabranchial margin; epibranchial ridge dentate, obliquely extending from near gastric tubercle to posterolateral margin, prominent at middle and distal end; prominences on epibranchial ridge, gastric tubercle, and gastric median granule almost coming into line. Metabranchial region deeply concave between epibranchial and intestinal ridges; margin weakly upturned, incurved at anterior 0.7, obtusely angled at posterior 0.3. Posterior margin trilobate; lateral lobes triangular with rounded tip, well

developed far beyond median lobe; median lobe small, triangular, with rounded tip, situated slightly lower than lateral lobes.

Third maxilliped (Fig. 2c, d) covered with minute granules; ischium 1.2 times as broad as exopod in maximum breadth; merus 1.2 times as long as ischium along mesial margin; exopod arcuate and rimmed with short setae along lateral margin, with larger granules on distal part; internal mesial ridge vestigial, with mesially directed, long setae.

Cheliped (Fig. 2e) stout, entirely covered with granules of various sizes, sparsely frilled with short setae; merus subcylindrical, granules large and acute near inner and outer margins; carpus short, arcuate on outer margin; palm medially swollen, somewhat arcuate on inner margin, outer margin divided into 3 lobes, as long as movable finger along outer margin; both cutting edges of fingers with several minute, obtuse teeth, gaping and blunt at proximal 0.3.

Ambulatory legs (Fig. 2f) slender, similar in shape, gradually decreasing in length from first to fourth, covered with minute granules except dactyli; meri subcylindrical, slightly longer than combined length of

carpi and propodi, with sparse soft setae; carpi slightly shorter than propodi; dactyli 1.2 times as long as propodi, with vestigial, inconspicuous dactylo-propodal locks near proximal borders on dorsal surfaces (Fig. 2g).

Abdomen (Fig. 2h) entirely covered with minute granules on ventral surface; formula $2+R+T$; first segment completely concealed beneath carapace; second segment short, transversely zonal, bent proximally at median part; main fused section composed of third to sixth segments, ovoid, convex ventrally, divided into subregions by 2 longitudinal and 3 transverse grooves, with obtuse triangular prominence near distal border; telson tongue-shaped, directed dorsally in natural position.

Etymology.—This species is dedicated to Prof. D. Guinot, who kindly gave the authors the opportunity to examine many valuable specimens deposited in the Muséum national d'Histoire naturelle, Paris.

Color.—In preserved condition, body and appendages generally light brown; ridges, margins and posterior lobes of carapace off white.

Remarks.—This species is similar to *N. alata* Komatsu & Takeda, 1999 from the Ryukyu Islands, Japan, in the strongly expanded epibranchial region, the development of the frontal region, and the deeply concave metabranchial region. It is, however, distinguished from *N. alata* as follows: the epibranchial ridges are dentate, whereas in *N. alata* the ridges are continuous; the mesogastric ridge is narrow and gentle, whereas in *N. alata* the ridge is broad, with a median shallow groove; the posterior lobes are more strongly expanded, whereas in *N. alata* the lobes are moderately expanded. The new species also resembles *N. mimetica* Nobili, 1906, but is distinguished from the latter by the dentate epibranchial ridge, the small projection of the pterygostomian margin, and the well-developed posterior lobes.

Nursia guinotae, *N. alata*, and *N. mimetica* can be distinguished from *N. plicata*

(Herbst, 1804) as follows: the hepatic and transverse ridges of the carapace are absent, whereas in *N. plicata* the ridges are present; the posterior margin of carapace is trilobate, whereas in *N. plicata* the posterior margin is bilobed; the abdominal formula of female is $2+R+T$, whereas in *N. plicata* the formula is $1+2+3+R+T$.

Nursia mimetica Nobili, 1906

Fig. 3

Nursia mimetica Nobili, 1906:261 (type locality: Rikitea, Tuamotu Archipelago); 1907: 380, pl. 1(13); Komatsu & Takeda, 1999: fig. 1D.

Material examined.—Syntype, 1 ovig. female, 2.7×3.7 mm, off Rikitea, Mangaréva I., Gambier Is., Tuamotu Archipelago, French Polynesia, 4–5 m, 1905, coll. G. Seurat, MNHN-B 17102.

Redescription.—Carapace (Fig. 3a) transversely rhomboidal in general outline, 1.4 times broader than long, closely covered with minute granules, provided with postfrontal, median, and epibranchial ridges. Front moderately developed, 0.2 times as broad as carapace; margin slightly ridged, divided into 2 truncate lobes by small median notch; postfrontal ridges obliquely converging from frontal-orbital angles but not meeting together. Orbit with 2 grooved, longitudinal fissures on dorsal roof; infraorbital lobe bearing V-shaped notch, with terminal sharrow pit. Pterygostomian margin forming general outline, almost straight, roundly angled at posterior end. Hepatic region faintly defined; margin inside general outline of carapace, obtusely angled near posterior end. Mesogastric ridge broad, with longitudinal, shallow groove along midline, with some pairs of small pits on both sides of posterior end of ridge. Gastric region gently convex bilaterally. Cardiac region weakly separated from intestinal region by faint transverse groove. Intestinal region gently swollen, with faint median ridge extending from cardiac region. Epibranchial region strongly

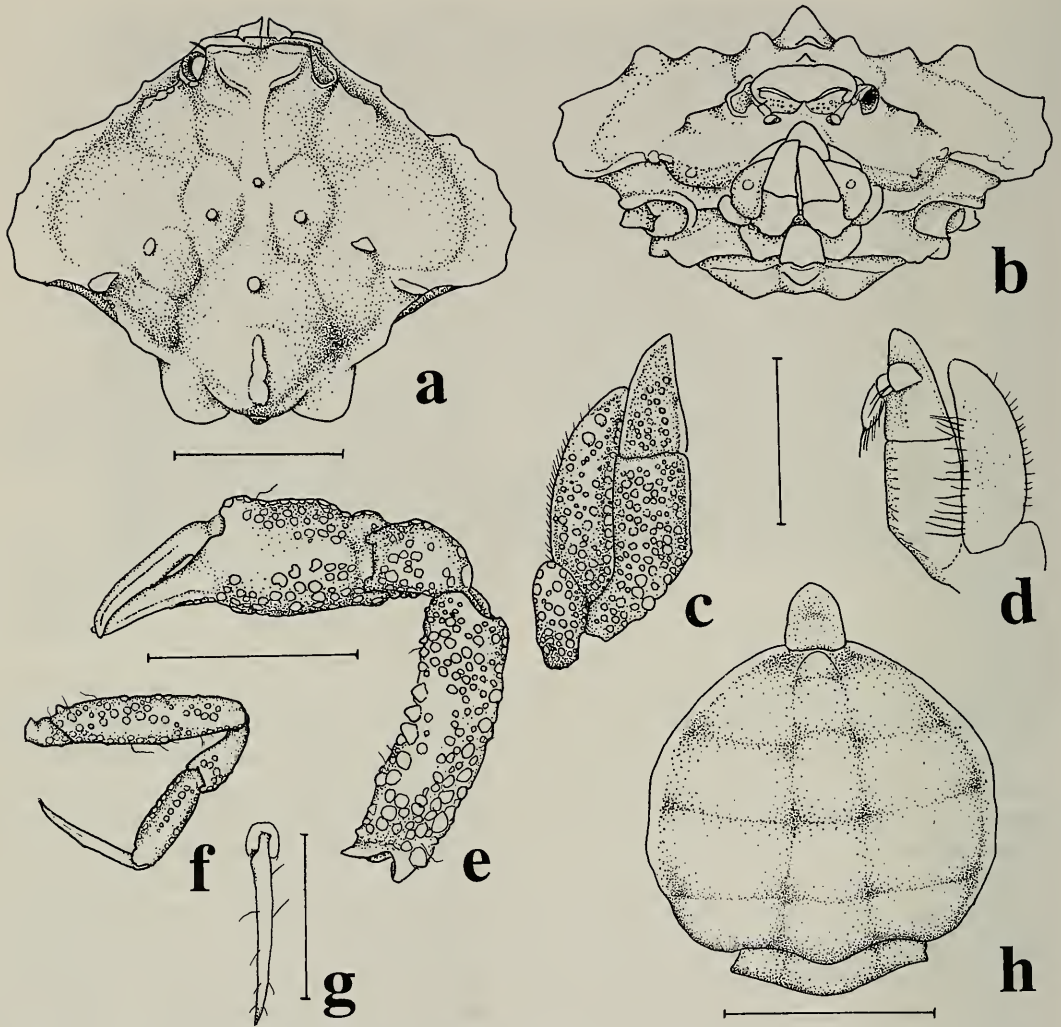


Fig. 2. *Nursia guinotae*, new species, holotype, ovigerous female, Vietnam, 2.7 × 3.2 mm (MNHN-B 9947): a, carapace, dorsal view; b, same, frontal view; c, right third maxilliped, external view; d, same, internal view; e, right cheliped, dorsal view; f, right first ambulatory leg, dorsal view; g, dactylus of same, lateral view; h, abdomen, ventral view. Scales equal 1 mm (a-b, e-f, h), and 0.5 mm (c-d, g).

expanded, sloping anteriorly from epibranchial ridge; margin thin, weakly upturned, separated from pterygostomial margin by small notch, obtusely angled at posterior 0.4, forming rounded, obtuse angle with metabranchial margin; epibranchial ridge weak, extending from near gastric convexity to metabranchial margin, interrupted medially. Metabranchial region shallowly concave between intestinal and epibranchial ridges, with 2 pairs of shallow pits on both

sides of cardiac and intestinal regions; margin gently converging on anterior 0.3, inwardly arcuate on posterior 0.7. Posterior margin trilobate, not well developed; laterel lobes situated lower than metabranchial region; median lobe small, situated lower than lateral lobes.

Third maxilliped (Fig. 3b, c) entirely covered with minute granules of various sizes; ischium longitudinally convex in lateral 0.7; merus 1.2 times longer than ischi-

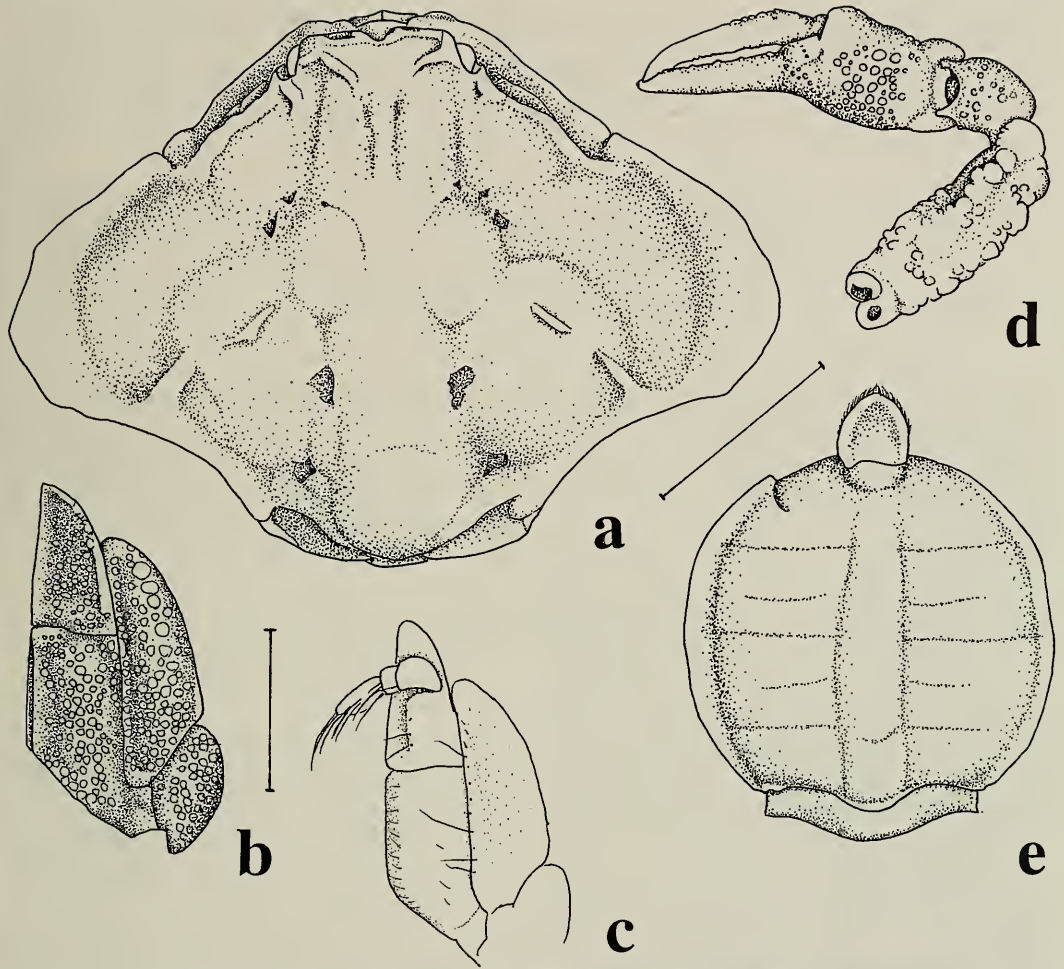


Fig. 3. *Nursia mimetica* Nobili, 1906, syntype, ovigerous female, Rikitea, Tuamotu Archipelago, 2.7×3.7 mm (MNHN-B 17102): a, carapace, dorsal view; b, left third maxilliped, external view; c, right maxilliped, internal view; d, right cheliped, dorsal view; e, abdomen, ventral view. Scale equal 1 mm (a, d-e), and 0.5 mm (b-c).

um along mesial margin, arcuate on lateral margin; exopod slightly convex along midline, with row of large granules, arcuate on lateral margin; internal mesial ridge vestigial, with several mesially directed, long setae.

Right cheliped (Fig. 3d) moderate, 1.1 times longer than carapace, covered with granules of various size; merus subcylindrical, slightly arcuate on outer margin; carpus short, convex dorsally; palm swollen; movable finger 1.4 times as long as palm along outer margin; both cutting edges of

fingers furnished with several triangular teeth on distal 0.4, blunt on proximal 0.6. Left cheliped missing.

Ambulatory legs missing.

Abdomen (Fig. 3e) entirely covered with minute granules; formula 2+R+T; first segment completely concealed beneath carapace; second segment short, transversely zonal, proximal border gently convex medially; main fused section composed of third to sixth segments, ovate, slightly convex ventrally, with 3 medially interrupted transverse grooves and 2 short translucent

Table 1.—Differences between *Nursia mimetica* Nobili, 1906, *N. alata* Komatsu & Takeda, 1999, and *N. guinotae*, new species.

	<i>N. mimetica</i>	<i>N. alata</i>	<i>N. guinotae</i>
Mesogastric ridge	broad with median groove	broad with median groove	narrow
Epibranchial ridge	oblique	oblique	oblique and dentate
Posterior margin	indistinctly trilobate, lower than metabranchial margin	trilobate	distinctly trilobate
Distribution	Tuamotu Archipelago	Ryukyu Islands	Vietnam

bands between grooves, with subtriangular prominence just near distal border, proximal border convex medially; telson short, tongue-shaped, with short setae around apex.

Remarks.—This species is known only from the specimens used by Nobili (1906, 1907), two females, from off Rikitea, Tuamotu Archipelago. Nobili noted that they mimic fragments of the calcareous alga, *Halimeda opuntia*. Tan & Richer de Forges (1993) also reported some mimetic crabs belonging to the family Leucosiidae. Although Nobili recorded two females in his descriptions, only one ovigerous female (syntype, MNHN-B 17102) is now deposited in MNHN. We inquired with the Museo Regionale de Scienze Naturali, Torino, for the remainder of the syntype specimens, but they were not found there (L. Levi, in litt.). The present specimen agrees well with Nobili's descriptions, but is missing all its legs except the right cheliped.

The comparison of *N. mimetica*, *N. alata*, and *N. guinotae* is summarized in Table 1.

Acknowledgements

We wish to express our cordial thanks to Prof. Danièle Guinot, MNHN, for providing the specimens. Our grateful thanks are due to Dr. Lisa Levi, Museo Regionale di Scienze Naturali, Torino, for her kind response to our inquiry; also to Drs. Tatsuo Katagiri and Noriko Uetani, Tokyo Metro-

politan Institute for Neuroscience, for providing HK with a stereoscopic microscope; and to Dr. Masayuki Osawa, National Science Museum, Tokyo, for improving the manuscript and general help.

Literature Cited

- Herbst, J. F. W. 1804. Versuch einer Naturgeschichte der Kraben und Krebse nebst einer systematischen Beschreibung ihrer verschiedenen Arten, 3(4). Berlin, 1–49, pls. 59–62.
- Ihle, J. E. W. 1918. Die Decapoda Brachyura der Siboga-Expedition. III. Oxystomata: Calappidae, Leucosiidae, Raninidae.—Siboga-Expedition 39b:159–322.
- Komatsu, H., & M. Takeda. 1999. A new leucosiid crab of the genus *Nursia* from the Ryukyu Islands.—Bulletin of the National Science Museum, Tokyo, Series A, 25:59–64.
- Leach, W. E. 1817. The Zoological Miscellany, Being Descriptions of New or Interesting Animals, vol. 3. London, 151 pp. + pls. 121–149.
- Nobili, G. 1906. Diagnoses préliminaires de Crustacés, Décapodes et Isopodes nouveaux recueillis par M. le Dr G. Seurat aux îles Touamotou.—Bulletin du Museum National d'Histoire Naturelle, Paris 12:256–270.
- . 1907. Ricerche sui Crostacei della Polinesia. Decapodi, Stomatopodi, Anisopodi e Isopodi.—Memorie della Reale Accademia delle Scienze di Torino, Classe di Scienze Fisiche Matematiche e Naturali, Serie 2, 57:351–430, pls. 1–3.
- Samouelle, G. 1819. The Entomologist's useful Compendium, or An introduction to the knowledge of British insects. London, 469 pp.
- Tan, C. G. S., & B. Richer de Forges. 1993. On the systematics and ecology of two species of mimetic crabs belonging to the family Leucosiidae (Crustacea: Decapoda: Brachyura).—Raffles Bulletin of Zoology 41:119–132.